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AMCIS 1997 Proceedings

Americas Conference on Information Systems (AMCIS)

8-15-1997

# Business Use of the World Wide Web: A Model of Business Web Usage

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## A BUSINESS WEB USE MODEL

In less than five years after the Internet opened its door for the first time to the business community, the commercial domain has become the most dominant force of the Internet. The introduction and subsequent explosive adoption of the World Wide Web by businesses as well as consumers is making electronic commerce an uncontested reality. According to a recent study, almost 65 percent of Fortune 500 companies have a Web site and the number is continuously growing [Liu et al., 1997]. The virtues of the Internet revolution have been widely documented in the popular press. However, as with any new technology at its early stage, many business executives are uneasy about this fascinating and enigmatic technology [Jarvenpaa and Ives, 1996; Maglitta, 1996]. The biggest question for them is how and when they can exploit the technology for business value.

To help managers establish sound business Web strategies and IS researchers conduct a systematic stream of research, we propose a business Web use model. As shown in Figure 1, the model consists of three major categories of business Web use: (1) Informational Web, (2) Transactional Web, and (3) Operational Web.

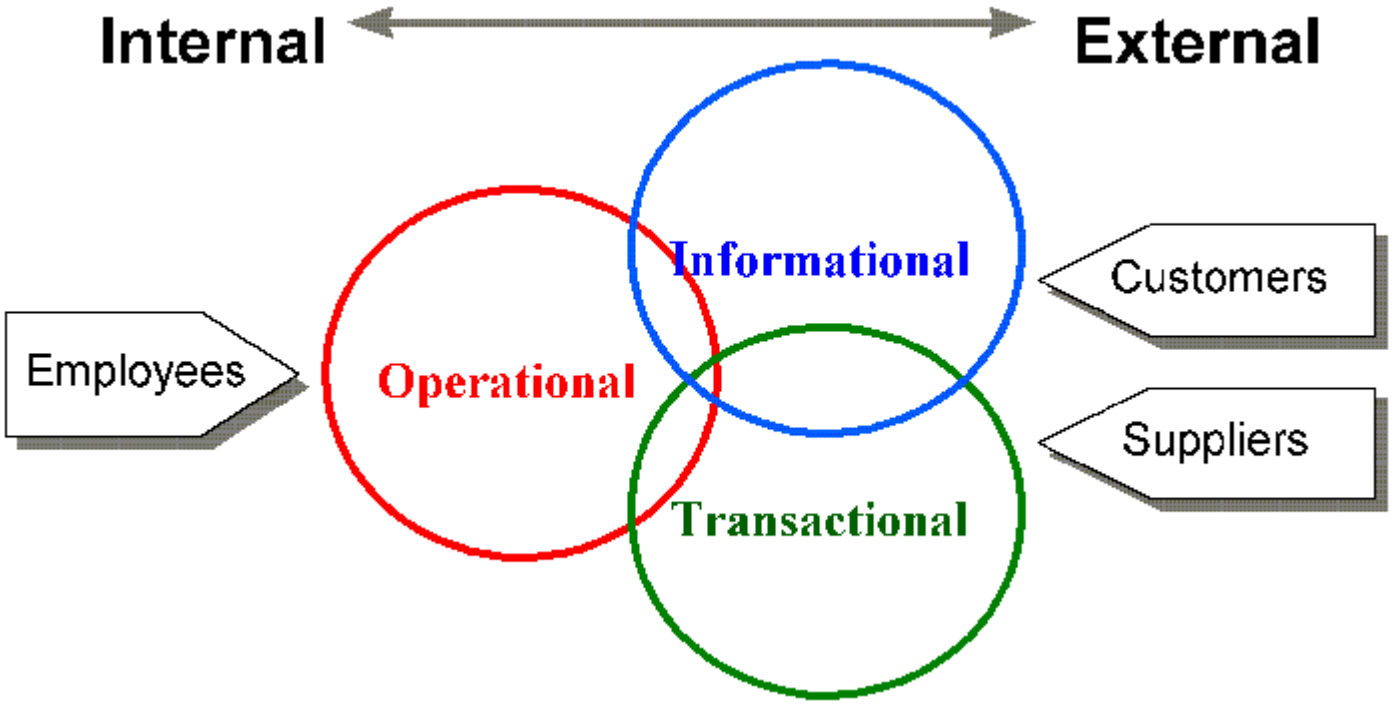


**Figure 1. A Business Web Use Model**

The tri-oval model depicts three major uses of the Web: (1) Informational Webs are dedicated to the dissemination of information. They are used to educate, entertain, influence, or reach the "consumer." For instance, a retailer may use the Web to publish consumer information about a product or service. Similar to

traditional broadcast media like radio or television, most Informational Webs use "one-way" communications. However, some Web sites reverse the flow and request information from visitors for marketing purposes. Though technically "two-way," the captured data is not usually processed in real-time and no true interaction occurs. (2) In contrast, Transactional Webs support a coordinated sequence of user and system activities that ultimately results in the transfer of an entity of intrinsic (usually monetary) value. For instance, when products or services are purchased, sold, bartered, or exchanged on the Web, it is transactional in nature. Transactional Webs require a true "two-way" interaction. They usually give rise to security concerns and are generally more sophisticated technically. (3) Finally, Operational Webs offer new mechanisms for conducting business operations by integrating computing power, human intellect, and other resources into synergistic networks of people which now have augmented their efforts through collaboration and the coordination of activities. Some of the examples of operational Web applications would include Internet-based document sharing and calendaring (scheduling), Web-based on-line analytical processing (OLAP), electronic mail, and the various conferencing systems in common use at alert corporations. These add new functionality like decision support and multimedia communication to support the sharing and cultivation of tacit knowledge [Curry, 1996].

We believe there is an evolutionary pattern in the use of the Web as a business tool. In the first stage, a typical company implements the Web primarily for informational purposes because it is relatively simple and inexpensive to do, and the company perceives a quick and large return on investment. As organizations become more familiar with the technology, they expand the Web site to sell products and provide services. At this point, integrating the Web with existing applications and databases become inevitable. Eventually companies realize that the Web is more than a technology for communication and exchange of data over the networks. The Web eventually becomes a platform on which all IS applications are integrated and coordinated. This is why many believe that "intranets" are one of the most important technologies that may reshape corporate IS [Carr, 1996; Nash, 1996]. In the final stage, the Web (as its name implies) becomes integrated and migrates into all aspects of business, including inter-company relationships that derive competitive advantage. To successfully implement the Web, companies need to address different sets of issues at different stages.

| | |
|---|---|
| • **Operating Information (e.g, manuals, and the like)**<br>• Personnel Issues<br>• Employee Survey<br>• Direct Sales to Customers<br>• Warranty Registration<br>• Product Information<br>• Customer Survey<br>• Annual Report<br>• Pricing and Inventory Information | • Company Policies<br>• Employee Feedback (e.g., suggestions)<br>• Employee Communication<br>• Customer Service<br>• Advertising (e.g., the marketing of products/services)<br>• Public Relations<br>• Customer Feedback (e.g., suggestions)<br>• Stockholder Information |

**Table 1. Seventeen Known Uses of the Internet for Business Purposes (circa, 2nd quarter of 1996)**

## THE STUDY

Figure 1, the *tri-oval model* of business use of the web, is a high-level view of the model that has guided our preliminary work and has evolved with our research agenda. To verify the applicability of our model to the real world, we conducted, in the second quarter of 1996, a comprehensive survey of 82 firms with a Web presence. This exercise represents only the first data set in a formal longitudinal study of Internet use and implementation issues. A second survey targeting over 200 firms, including the re-examination of the 82 original firms, is scheduled for the spring of 1997.

### Measures and Pre-testing

We developed the questions on business use by firstly asking a group of 35 interested mid-managers enrolled in an elective MBA-level electronic commerce course to peruse the popular and trade press, and to create an exhaustive list of business tasks performed on the Internet by businesses. In a synchronous meeting attended by all participants, using several group support tools within the GroupSystems software, the list was pared down to include 17 activities known to be implemented by multiple companies (see Table 1). We also included a write-in option for companies to fill if, in fact, they had different uses for the Web. We carefully reviewed each measure to ensure a common understanding. We then pre-tested the instrument with representatives of 5 firms in different industries and with differing experiences with the Internet. Although our data set was admittedly produced from a subject pool of convenience, it represented a wide range of industries and included companies of various sizes, from Fortune 100 firms to ones with annual revenue of less than $1 million.

**Confirmatory Factor Analysis**

A confirmatory factor analysis was performed and demonstrated that the 16 retained initial measures plus the most significant write-in activity loaded under three main factors that we've defined as informational, transactional, and operational. The results in Table 2 provide compelling support for this proposition.